

REMARKS

Prior to this response, Claims 1-31 are pending and Claims 32-66 are withdrawn.

§ 103 Rejections

Claims 1-15, 17, 20-24 and 27-31 stand rejected under 35 USC § 103(a) as being unpatentable over Verhoog (US Patent 6,296,968 B1) in view of Brinkman et al. (US Patent 4,007,315). Verhoog teaches a one-piece battery comprising a tank divided into cells each receiving an electrode assembly, closure means for the tank, and a circulating fluid type heat exchanger (col. 2, lines 28-32). The tank is generally, although not exclusively, made of plastics materials (col. 2, lines 44-46). The Examiner concedes that Verhoog does not disclose a deformable bladder.

Brinkman teaches a battery cell cooling system “comprising cooling elements immersed in the electrolyte in the tops of said battery cells;” (Claim 1) The cooling bladder 3 in Brinkman (see Figure 2) is clearly designed to cool the electrolyte and is not designed to maintain contact with at least the first planar surface or the second planar surface of each of the electrochemical cells during volumetric change. The electrolyte is the material that maintains contact. If the cooling bladder of Brinkman were deformed to make substantial or maximal contact with the cells (2 in Figure 2 of Brinkmann) then the bladder would restrict the flow of the electrolyte in the battery thereby inhibiting the cooling of the cell since cooling is one of the purposes of the electrolyte in Brinkmann. This teaches away from the cooling bladder in the Applicant’s application. In the present application, the cooling bladder is deformed and conforms to the surfaces of the electrochemical cells to maximize contact and cooling. In addition, the Applicants teach a cooling bladder external to the electrochemical cells. Verhoog and Brinkmann teach a cooling bladder within the electrochemical cells. For these reasons, Applicants believe it is improper for the Examiner to take the cooling bladder of Brinkmann (that is designed to cool the electrolyte) and suggest it can be combined with the teaching of Verhoog. Applicants respectfully ask that the rejection under 103(a) of claims 1-15, 17, 20-24 and 27-31 be withdrawn and the claims be allowed.

Claim 16 stands rejected under 35 USC § 103(a) as being unpatentable over Verhoog (US Patent 6,296,968 B1) in view of Brinkman et al. (US Patent 4,007,315) as applied to claims 1-13, 19-24, 27-31 and in further view of Fitts et al. (US 2002/015333). The Examiner relies on Fitts to teach a core material (conductive polymeric composites) that are made of metallic, non-metallic or metallic with non-metallic materials that have a high thermal conductivity. There is nothing in Fitts to suggest that the conductive polymeric composites are flexible, deformable or conformable. The existence of a thermally conductive material in Fitts does not teach that, if it were used to construct a cooling bladder, the bladder would be deformable or conformable. The Applicants argue that, for this reason, it is improper for the Examiner to combine Fitts with Brinkmann and Verhoog and that the rejection of claim 16 under 35 USC § 103(a) as being unpatentable over Verhoog in view of Brinkman et al. and in further view of Fitts et al. has been overcome and should be withdrawn.

Claims 25 and 26 stand rejected under 35 USC § 103(a) as being unpatentable over Verhoog (US Patent 6,296,968 B1) in view of Brinkman et al. (US Patent 4,007,315) as applied to claims 1-13, 19-24, 27-31 and in further view of Gyoten et al. (US 2001/0036567). The Examiner asserts that the Gyoten reference teaches water or aqueous ethylene glycol to be a coolant in order to prevent destruction of the cell by varying temperatures. But Gyoten does not overcome the fundamental problem of the rejection—the combination of Brinkmann with Verhoog as explained above. For this reason the Applicants believe the 103(a) rejection is improper and should be withdrawn.

The rejection of claims 25 and 26 under 35 USC § 103(a) as being unpatentable over Verhoog in view of Brinkman et al. and in further view of Gyoten et al. has been overcome and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested.

Allowance of claims 1-31, at an early date is solicited.

Respectfully submitted,

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By: 
Stephen F. Wolf, Reg. No.: 451502
Telephone No.: 651-737-2325

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833